

REMARKS

In response to the Final Office Action dated May 1, 2007, claims 1, 3 and 4 are amended, claim 2 has been canceled, and claims 7-31 are withdrawn. Claims 1 and 3-6 are now active in this application. No new matter has been added.

Claims 1, and 3-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Levy et al. (US Patent 4,839,247), apparently in view of Official Notice of automobiles.

Claims 1, and 3-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ito et al. (US Patent 6,926,982), apparently in view of Official Notice of automobiles.

These rejections are traversed.

Amended independent claim 1, recites, in pertinent part, **“a battery connected to the fuel cell stack in a parallel connection** in which an anode of the battery is connected to the anode of the fuel cell stack, and a cathode of the battery is connected to the cathode of the fuel cell stack; and a **controller programmed to:** determine whether or not the fuel cell stack is generating electricity, and **supply current to the unit cell of the fuel cell stack from the battery through the parallel connection to allow the unit cell to electrolyze water therein, when generation of electricity by the fuel cell stack is terminated.”**

In order to establish a *prima facie* obviousness rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught or suggested by the prior art. *In re Rokya*, 490 F. 2d 981, 180 USPQ 580 (CCPA 1974). Further, “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F. 3d 977, 988 (Fed. Cir. 2006). At a minimum, the cited prior art does not disclose (expressly or inherently) the above recited limitation.

The Office Action, at pages 3 and 4, merely states Levy, at column 1, lines 14-15, discloses a regenerative current in which electrolysis is involved. However, Levy, at column 1, lines 12-18, merely states, “[t]his invention relates to a regenerative electrochemical cell stack which can operate as **an electrolysis cell stack or as a fuel cell stack**. More particularly, this invention relates to a stack of the character described which is static or passive in operation and does not require any pumps of the like to move gases, coolant, or product water.”

In contrast to Levy, claim 1 requires, “a controller programmed to: determine whether or not the fuel cell stack is generating electricity, and **supply current to the unit cell of the fuel cell stack from the battery through the parallel connection to allow the unit cell to electrolyze water therein, when generation of electricity by the fuel cell stack is terminated.**”

Additionally, in Levy, the fuel cell (18) and the electrolysis cell (20) are entirely different components with distinct structures and functions, as described at column 3, line 51 to column 5 line 7, and illustrated in FIG 4. Water is formed in the fuel cells (18) during operation of the fuel cell mode. The water collects in the reservoir plate (44) and migrates through the plate (44) and the gas porous membrane (60) into the porous graphite reservoir plate (64) of the electrolysis cell (20), when the stack operates in an electrolysis mode, as described at column 4, lines 51-56, and illustrated in FIG. 4. The water is then electrolyzed into oxygen and hydrogen in the electrolysis cell (20), at the matrix (62) opposite to the reservoir plate (64) during the electrolysis reaction, as described at column 4, lines 59-68. The fuel cell (18) is thus dedicated to generate electricity, and the electrolysis cell (20) is dedicated for water electrolysis. The fuel cell (18) is not a unit cell that generates electricity and also electrolyzes water therein, as required by claim 1.

The secondary art (Official Notice of automobiles) does not remedy the deficiencies of Levy.

Thus, Applicant submits that claim 1 is patentable over Levy and Official Notice of automobiles.

Additionally, the Office Action at pages 4 and 5, asserts that Ito discloses a fuel cell with interconnectors at FIG. 1, component 1.

In contrast to Ito, claim 1 requires, “a controller programmed to: determine whether or not the fuel cell stack is generating electricity, and **supply current to the unit cell of the fuel cell stack from the battery through the parallel connection to allow the unit cell to electrolyze water therein, when generation of electricity by the fuel cell stack is terminated.**”

Additionally, the Office Action, at page 4, appears to assert that the fuel cell of Ito acts as a battery. However, in Ito, power generation and electrolysis do not occur simultaneously, see column 8, lines 12-15. Therefore, the fuel cell cannot act as a battery for supplying electricity when water electrolysis is. Thus, Ito does not disclose “a battery connected to the fuel cell stack in a parallel connection “ as required by claim 1.

The secondary art (Official Notice of automobiles) does not remedy the deficiencies of Levy.

Thus, Applicant submits that claim 1 is patentable over Ito and Official Notice of automobiles.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*,

819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as independent claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable.

Thus, it is respectfully submitted that dependent claims 306 are also patentable for at least the same reasons as independent claim 1.

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call the undersigned attorney at the telephone number shown below.

10/637,660

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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